

REMARKS

Claims 1-12 are in the case and presented for consideration.

Claim 10 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for reasons such as improper claim format. Claim 10 has been rewritten to overcome the Examiner's §112 rejection and is believed to be in proper form. Withdrawal of the rejection with respect to claim 10 is therefore respectfully requested.

Claims 1-12 are under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,197,850 to Fernandez, et al. ("Fernandez") or U.S. Patent 6,360,808 to Twardowska, et al. ("Twardowska") and further in view of WO 00/73236 (or the corresponding U.S. Patent 6,972,059) to Skerdi.

Applicant has amended claim 1 to better define the claimed invention.

Claim 1 is directed to a process for producing exothermic sleeves from a fluoride-free composition, for example, by blow molding. The procedure recited in claim 1 comprises certain steps or features which are not disclosed or suggested by the references cited by the Examiner. More precisely, in step (A) of claim 1, a mixture for producing exothermic sleeve is introduced into the cavity or space defined by the sleeve mould and the two cores (see, e.g., items 2, 2' and 3 of Fig. 2A) to obtain an uncured sleeve, which is formed as a single piece, with an opening at both ends (see, e.g., Fig. 2A). One opening is formed with an internal double chamfer, while the other opening is substantially flat (see, e.g., Fig. 2B). The procedure as recited in claim 1 also includes, for example, the step (E) of providing a plug in the opening opposite the end with the internal double chamfer to prevent sand or other contaminants from entering the cavity or space (see page 7, lines 12-15, of the specification).

A process for producing the exothermic sleeve as described above is not disclosed or suggested by any of the prior art patents cited by the Examiner.

Conventional exothermic sleeves are formed of two pieces: the main riser piece and a fluoride-free annular piece (also called a “biscuit”). In some cases, the latter piece may have an internal double chamfer.

The claimed invention eliminates the need for a separate fluoride-free annular piece or biscuit, while still allowing molten material to solidify with a notch formed by the internal double chamfer that is integrally moulded with the exothermic sleeve.

Known methods for obtaining an exothermic sleeve are shown, for example, in Figs. 1A, 1B and 1C (see also, U.S. Patents 3,815,665 to Baur; 4,574,869 to Trinkl, et al.; 4,719,958 to Schopp, et al.; 5,299,625 to Miki; and 6,343,642 to Miki). As illustrated in Figs. 1A, 1B and 1C, a mixture suitable for the producing exothermic sleeves is introduced into a mould (3) with the collaboration of a core (2) (see, Fig. 1A). Next, the sleeve (1) is cured and de-moulded, leaving the void intended for the deadhead (4) (see Fig. 1B). Finally, an intermediate biscuit (5) is applied to the opening of the sleeve, and the biscuit includes an orifice (6) to allow the melt to pass (see Fig. 1C). See paragraph bridging pages 5-6 of the specification.

In contrast, an improved process for obtaining the exothermic sleeve is shown, for example, in Figs. 2A, 2B and 2C. First, a fluoride-free mixture is blown inside the space or cavity formed by the mould (3) and the two cores (2,2') (see Fig. 2A). The sleeve, formed as a single piece with an opening at both ends (see Fig. 2B), is extracted from the mould. The sleeve is formed with a double chamfer (8) in one opening, and the other opening is adapted to receive a plug (see Fig. 2C).

Fernandez, Twardowska and Skerdi fail to disclose or suggest a process for producing an uncured sleeve as a single piece with the geometrical features (i.e., “opening... having an internal double chamfer”) as recited, e.g., in claim 1.

Fernandez discloses a procedure which comprises a first stage of insertion in a molding die of an insert made of fluorine fluxes and other components.

Twardowska discloses a cold-box process comprising a first step of introducing the sleeve mix containing an oxidizable metal having fluoride into a sleeve pattern to prepare an uncured sleeve.

Skerdi possibly teaches an “essentially fluoride free” feeder in order to avoid the problem known as “hollow fire” (see, e.g., Skerdi, col. 2, line 6). However, Skerdi does not mention or recognize the problem known as “fish-eye”, which is overcome by the claimed invention (see, e.g., page 3, lines 10-16, of the specification). Skerdi also does not disclose or suggest the possibility of eliminating the fluoride-free biscuit, which is one of the objectives or inventive features of the claimed invention. Thus, the Skerdi does not disclose or suggest, alone or in combination, a solution that is similar to the solution recited in the claims.

Accordingly, the combination of the references in the manner proposed by the Examiner does not provide any indication to those skilled in the art regarding how to create a process for obtaining a sleeve formed as a single piece from fluoride-free composition and having an internal double chamfer.

Trinkl, et al., Schopp, et al., and Miki (U.S. Patent 6,343,642) would have taught those skilled in the art away from the claimed invention. For example, all of these references ***teach the need of obtaining or using an exothermic sleeve that has two***

pieces, i.e., a main riser piece and a bottom “biscuit” piece. Consequently, Trinkl, et al., Schopp, et al., and Miki (U.S. Patent 6,343,642) would have taught those skilled in the art away from the claimed invention.

Even Miki (U.S. Patent 5,299,625) discloses providing both the main riser piece and the bottom “biscuit” piece (or breaker core) with a double chamfer at their respective openings. Miki also does not suggest to those skilled in the art the desirability of making an exothermic sleeve, or at least the main portion, from fluoride-free composition.

In addition, Baur fails to teach how the basin-like riser unit is produced. Baur also does not suggest the desirability of combining the other references cited by the Examiner to obtain the beneficial effect produced by the claimed invention, which is producing an integrally-formed exothermic sleeve with a double chamfer opening.

Accordingly, the applied references do not teach let alone motivate those skilled in the art to create an **exothermic sleeve formed as a single piece from a fluoride-free composition** and having a **double chamfer** at the opening that is in communication with the mould cavity.

For the reasons discussed above, reconsideration and withdrawal of the rejection with respect to claims 1-12 is respectfully requested.

Accordingly, the application and claims are believed to be in condition for allowance, and favorable action is respectfully requested. No new matter has been added.

If any issues remain, the Examiner is respectfully invited to contact the undersigned at the number below to advance the application to allowance.

Respectfully submitted,

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